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PROJECT SUMMARY

USER'S GUIDE FOR THE AUTOMATED INHALATION EXPOSURE METHODOLOGY (IEM): ADDENDUM 1

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ABSTRACT

The Inhalation Exposure Methodology (IEM) is an interactive system of computer programs installed on the IBM system at the National Computer Center, Research Triangle Park, North Carolina. The system provides an estimate of the population distribution around a chosen site and estimates of annual-average, ground-level, air concentrations of pollutants released from one or more sources at an industrial complex located at the site and of the population exposures associated with the releases. This addendum presents revised output tables for the example problem given in the IEM user's guide. These revisions result from corrections made to the atmospheric dispersion code after publication of the original document. This report also provides information on preparation and manipulation of IEM input data files.

INTRODUCTION

The Inhalation Exposure Methodology (IEM) is an integrated system of computer programs that estimates (1) near-field (within 50 km), annual-average, ground-level air concentrations of pollutants released from one or more sources at an industrial complex and (2) population exposures associated with the releases.[1] IEM was developed to provide automatic access to and linkage of on-line (1) meteorological data, (2) population data, (3) a slightly modified version (called ISCLTM) of the long-term version of the Industrial Source Complex (ISCLT) atmospheric dispersion model,[2] and (4) a concentration-exposure estimation program (CONEX). The IEM produces various tables of concentration and exposure estimates. Although IEM can be applied to a variety of problems, its principal use has been in estimating annual-average pollutant concentrations and associated human exposures in the vicinity of hazardous waste incineration, treatment, and disposal facilities.

An interactive version of the IEM system has been implemented, for use by contractors and staff of the U. S. Environmental Protection Agency, on the IBM system at the National Computer Center, Research Triangle Park, North Carolina.

This addendum presents revised samples of IEM output tables for the example problem used in the IEM user's guide.[1] This addendum also provides: (1) general instructions for manually creating and editing files on the IBM system; (2) specific instructions for creating, editing, and using the four IEM input data sets; (3) comments on running IEM using monthly and seasonal meteorological data; and (4) comments on the default values built into IEM.

REVISED OUTPUT TABLES

This addendum presents revised samples of IEM output tables for the example problem used in the IEM user's guide.[1] The ISCLTM program used to produce the original example-problem output tables did not contain recent corrections suggested by the authors of the ISCLT computer code.[3] The revised tables, which are given in Appendix A of this addendum, illustrate current IEM output and replace the tables given in Appendix E of the original IEM user's guide.

FILE PREPARATION AND MANIPULATION

This addendum also gives general procedures for manipulating files using OBS (WYLBUR) on the IBM system of the USEPA National Computer Center, Research Triangle Park. N.C. The following procedures are covered:

- File Creation,
- File Saving and Replacement,
- File Deletion,
- File Editing, and
- File Concatenation.

Detailed instructions are given for using the above procedures to manually prepare user-supplied meteorological (MET) data files, user-supplied population (POP) data files, ISCLTM input data files, and CONEX input data files by manual creation of new files or by editing existing files.

REFERENCES

1. O'Donnell, F. R., P. M. Mason, J. E. Pierce, G. A. Holton, and E. Dixon, User's Guide for the Automated Inhalation Exposure Methodology (IEM), EPA-600/2-83-029, U.S. Environmental Protection Agency, Cincinnati, Ohio (April 1983).

2. Bowers, J. F., J. R. Bjorklund, and C. S. Cheney, Industrial Source Complex (ISC) Dispersion Model User's Guide, Volume I. and Volume II. - Appendices A Through I, EPA-450/4-79-030 and EPA-450/4-79-031, U.S. Environmental Protection Agency, Research Triangle Park, North Carolina (December 1979).

3. H. E. Cramer Company, Inc., "Program Library Update Packages 1-13 to the Industrial Source Complex (ISC) Dispersion Model User's Guide," H. E. Cramer Company, Inc., Salt Lake City, Utah (April 11, 1980 through August 15, 1983).

Additional Information

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- The complete report, entitled "User's Guide for the Automated Inhalation Exposure Methodology (IEM): Addendum 1" (Order No. _____; Cost _____, subject to change), will be available only from:

  National Technical Information Service
  5285 Port Royal Road
  Springfield, VA 22161
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